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AF/2834

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re the application of: **FUKUSHIMA, Tomoki et al.**

Serial Number: **09/938,729**

Group Art Unit: **2834**

Filed: **August 27, 2001**

Examiner: **Pedro J. Cuevas**

PTO Confirmation: 2756

For: **ENGINE GENERATOR APPARATUS**

SUBMISSION OF APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

October 14, 2003

Sir:

Submitted herewith are an original and two copies of an Appeal Brief in the above-identified U.S. patent application.

Attached please find a check in the amount of \$330.00 to cover the cost for the Appeal Brief.

If any additional fees are due in connection with this submission, please charge our Deposit Account No. 50-2866. This paper is filed in triplicate.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

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Registration No. 32,562

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF APPEALS

APPEAL BRIEF FOR THE APPELLANTS

Ex parte FUKUSHIMA, Tomoki et al.

ENGINE GENERATOR APPARATUS

Serial Number: 09/938,729

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Date: October 14, 2003
Atty. Docket No. 010960

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In re the application of: **FUKUSHIMA, Tomoki et al.**

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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

October 14, 2003

Sir:

This is an appeal from the Office Action dated May 15, 2003 (Paper No. 0503) in which claims 1-4 were finally rejected.

A Notice of Appeal was timely filed on August 14, 2003.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the subject application, which is:

Honda Giken Kogyo Kabushiki Kaisha

II. RELATED APPEALS AND INTERFERENCES

Appellants know of no other appeals or interference proceedings related to the present appeal.

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III. STATUS OF CLAIMS

Claims 1-4 have been finally rejected under 35 U.S.C. §103(a). As indicated by the final arguments on patentability, the claims do not rise or fall together.

IV. STATUS OF AMENDMENTS

All amendments have been entered, including the Amendment filed on February 24, 2003.

V. CLAIMS ON APPEAL

A clean copy of the claims on appeal is attached hereto as Exhibit A.

VI. SUMMARY OF THE INVENTION

The present invention, more precisely defined in claims 1 to 4, is an engine generator apparatus which can detect a fault in the operation of its generator section, and yet is a simple arrangement of components. In operation of the claimed apparatus, the direct current voltage (just after rectification) drops down upon establishment of the parallel operation with commercial power system if the generator has a fault, such as a line breakage in the windings. The drop in direct current voltage is eliminated by releasing the parallel operation. When the parallel operation is turned off and then turned on again, it is possible to determine that any drop in the direct current voltage derives from a fault on the generator. This operation of the claimed apparatus allows the fault detection to be simply carried out without monitoring the output of each of three phase windings of the generator.

More particularly, an illustrative embodiment of the invention is shown in Figure 7. That figure is a block diagram illustrating an arrangement of primary functions according to the present invention. A direct current voltage detector 39 measures direct current voltage V_{dc} which has been rectified by a converter 131. A first fault monitor 40 is arranged to be responsive to the command of generator fault detection to start monitoring the direct current voltage V_{dc} . When the direct current voltage V_{dc} exceeds a threshold level V_{dcth} within a predetermined length of time, a signal for starting the parallel operation is outputted from the first fault monitor 40. Alternatively, when the direct current voltage V_{dc} does not exceed the threshold level V_{dcth} within the predetermined length of time, a signal for generator fault is outputted.

Upon receiving the parallel operation start signal, a relay 135 is closed and an output increasing unit 41 is switched on to increase gradually the output of inverter 133 in the inverter unit 13. When receiving the parallel operation start signal, an inverter output detector 42 starts measuring the output of inverter unit 13.

Upon receiving the parallel operation start signal, a second fault monitor 43 monitors the outputs of direct current voltage detector 39 and inverter output detector 42. When the inverter output exceeds a rated level with the direct current voltage V_{dc} remaining higher than the threshold level V_{dcth} , a generator normality signal is outputted from the second fault monitor 43.

When the direct current voltage V_{dc} declines to below the threshold level V_{dcth} before the inverter output reaches its rated level after the parallel operation start signal is outputted, the relay 135 is opened up, thus allowing the fault signal to be released throughout a predetermined length of time T . The time length T is provided for returning the direct current

voltage V_{dc} to its threshold level V_{dcth} by releasing the parallel operation and thus having no load. For example, this time length is the duration through which the direct current voltage V_{dc} is returned back to its threshold level after the first of three phase windings is disconnected. As the fault signal is inverted and received by a gate 44, the relay 135 is opened. Simultaneously, the fault signal is received by a counter 45 which increments the counter value at every rise of the fault signal.

VII. THE ISSUES

1. Whether the *Dalstein* reference discloses "a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the connection," as recited in claim 1 and as required by each of the claims;
2. Whether the references would motivate one skilled in the relevant art at the time of the claimed invention to combine the disclosures, so as to obtain Appellants' invention; and
3. Whether the *Dalstein* reference discloses either the gradual increase of the output of the inverter at the start of the connection of the apparatus with the grid, as in claim 2, or the means for outputting a generator fault signal when the canceling and re-starting of the interconnection is repeated, as in claims 3 and 4.

VIII. THE PRIOR ART REJECTION

Claims 1-4 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Latos et al.* (U.S. Patent No. 5,512,811) in view of *Bogel* (U.S. Patent No. 4,384,213), and further in view of *Dalstein* (U.S. Patent No. 5,854,590). According to the Examiner:

Latos et al. clearly teaches the construction of an engine generator apparatus (10) for rectifying and converting an alternating output of a generator, which has multi-phase windings (column 4, lines 13-16) and is driven by an engine, and converting the rectified output by an inverter (142) into an alternating current at the frequency of a power system and the alternating current is interconnected with the source of said power system.

Bogel teaches the construction of an automatic transfer control device having:

means for starting (52-1, 52-2) the interconnection with the system source when a direct current voltage rectified rises up to first predetermined level after the start up of the engine and then increasing the output of the inverter; and

means for canceling (52-1, 52-2) the interconnection when the direct current voltage drops down to below second predetermined level, and for re-starting the interconnection with the system source when the direct current voltage returns back to the first predetermined level.

Dalstein teaches the use of a method for generating a fault indication signal comprising:

fault detecting means (40) for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the interconnection;

means where a generator fault signal (S) is outputted, when the canceling and the re-starting of the interconnection with the power system is repeated; and

wherein the output of the inverter is gradually increased at the start of the interconnection of the apparatus with the power

system, for the purpose of distinguishing between permanent and metal contact short-circuits and short-circuits due to arcing.

IX. ARGUMENT WITH RESPECT TO THE ISSUES

A. THE REFERENCES

The Examiner combines the following three references to reject the pending claims.

Latos et al. discloses an electrical power starter/generator (10) that converts electrical energy from a DC electric power source, such as a battery, to mechanical energy that is utilized to start an auxiliary power unit, such as a turbine engine in an aircraft. A start mode controller (50) is used to control the rate of generation of rotational mechanical energy delivered to the turbine engine. An auxiliary power unit starter/generator relay (94) is commanded to close via a line (96), connecting the aircraft battery (12) to the electric power starter/generator (10), thereby engaging the start sequence. The auxiliary power unit starter/generator relay (94) is commanded to open when the auxiliary power unit engine (82) reaches the cutout speed, thereby completing the start sequence. A control permanent magnet generator (36) produces polyphase AC electric power when driven by the turbine engine via shaft (14). The electrical power starter/generator (10) has an internal power supply (130).

Bogel discloses an automatic control transfer device for selectively switching between two loads (28 and 30) utilizing two main breakers (52-1 and 52-2). This device includes a means for sensing electric conditions on both the sources of electrical power. The device will switch between one of the two loads as needed.

And, *Dalstein* discloses a method of generating a fault indication signal using a neural network (26) to distinguish between permanent and transient faults as caused by arcing or a metal contact short-circuit. An output signal of 0.8 or higher is output for arcing and a signal of 0.1 is output for a metal contact short-circuit.

B. SUMMARY OF EXAMINER'S REJECTIONS

The Examiner admits that the primary reference, *Latos et al.*, fails to disclose certain limitations of Appellants' claims, including:

fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the restarting of the interconnection;

means where a generator fault signal is outputted, when the canceling and the re-starting of the interconnection with the power system is repeated; and

means where a generator fault signal is outputted, when the canceling and the re-starting of the interconnection with the power system is repeated wherein the output of the inverter is gradually increased at the start of the interconnection of the apparatus with the power system.

However, the Examiner concludes that it would be obvious for one skilled in the art "to use the method for generating a fault indication signal disclosed by *Dalstein* ... for the purposes of distinguishing between permanent metal contact short-circuits and short-circuits due to arcing," and thereby obtained Appellants' claimed invention.

C. APPELLANTS' ARGUMENT

Issue 1 The *Dalstein* patent is relied upon by the Examiner for the disclosure of a “post-processing device 40” which comprises “an AND element 41 with three inputs 42, 43 and 44, is connected to output 37 of threshold value device 36.” (3:35-39, 46-51). The reference, however, fails to disclose a means for fault detection after the re-starting of the interconnection. More specifically, in the words of the claims, *Dalstein* fails to disclose “a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the connection.” Accordingly, even if combined the references would not result in the claimed invention, and for that reason alone, the rejection should be withdrawn.

Issue 2 To justify the use of a particular combination of prior art references to find a claim unpatentable, there must be a showing in the references as a whole “to suggest the desirability, and thus the obviousness, of making the combination.” *Akamai Technologies, Inc., v. Cable & Wireless*, at 16 (Fed. Cir. September 15, 2003); *see also, C.R. Bard Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 48 USPQ2d 1225 (Fed. Cir. 1998). This principle embodies the same concept propounded by the Court of Appeals for the Federal Circuit in that, not only must there be a teaching in the prior art of the structural elements of appellant's claimed invention, the prior art itself must actually suggest that the structural elements be combined in a similar manner as the claimed invention. See, e.g., *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985), *vacated on other grounds*, *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 229 USPQ 478 (1986).

In the present application, there is nothing within the cited references which would to “suggest the desirability, and thus the obviousness, of making the combination” of elements recited in claim 1, particularly, there is nothing within *Dalstein* to suggest the desirability of using “the method for generating a fault indication signal disclosed by *Dalstein* ... for the purposes of distinguishing between permanent metal contact short-circuits and short-circuits due to arcing,” as asserted in the Office Action. The mere disclosure of post-processing device 40 in *Dalstein* (3:35-39, 46-51) does not suggest the desirability of inserting such a device into the system disclosed in *Latos et al.*

Appellants therefore submit that there is no legal basis for combining the references in the manner proposed in the Office Action.

Issue 3 With respect to claim 2, the *Dalstein* patent is relied upon by the Examiner for the disclosure of output of the inverter is gradually increased at the start of the interconnection of the apparatus with the power system, for the purpose of distinguishing between permanent and metal contact short-circuits and short-circuits due to arching. However, the *Dalstein* reference fails to disclose the gradual increase of the output of the inverter at the start of the connection of the apparatus with the grid, as in recited claim 2.

With respect to claims 3 and 4, the *Dalstein* patent is relied upon by the Examiner for the disclosure of “a fault indication signal S with a pre-defined value of 0.8 or higher at output 35 for arcing, while a fault indication signal S with another pre-defined value of approximately 0.1 is present for a metal contact short-circuit.” (3:28-32). However, this disclosure does not satisfy

the recitation of claims 3 and 4 of a means for outputting a generator fault signal when the canceling and re-starting of the inter connection is repeated.

Accordingly, Appellants submit that claims 2-4 are patentable over the cited references.

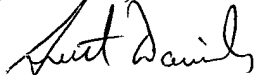
X. CONCLUSION

For the above reasons, the Board of Patent Appeals and Interferences is therefore respectfully requested to reverse the Examiner's rejection of the pending claims as being obvious over the cited references.

In the event this paper is timely filed, Appellants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to Deposit Account No. 50-2866, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Scott M. Daniels
Attorney for Appellants
Registration No. 32,562

Attorney Docket No. 010960
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Suite 700
Washington, DC 20036
Tel: (202) 822-1100
Fax: (202) 822-1111
Enclosure: Appendix A containing Claims on Appeal

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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In re the application of: **FUKUSHIMA, Tomoki et al.**

Serial Number: **09/938,729**

Group Art Unit: **2834**

Filed: **August 27,2001**

Examiner: **Pedro J. Cuevas**

PTO Confirmation: 2756

For: **ENGINE GENERATOR APPARATUS**

CLAIMS ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

The claims on appeal are 1-4, presented below.

1. (Previously Amended): A grid-connected type engine generator apparatus for rectifying and converting an alternating output of a generator, which has multi-phase windings and is driven by an engine, and converting the rectified output by an inverter into an alternating current at the frequency of grid and the alternating current is connected with the comprising:

a means for starting the connection with the grid when the direct current voltage at inside of the inverter rises up to first predetermined level after the start up of the engine and then increasing the output of the inverter;

a means for canceling the connection when the direct current voltage drops down to below second predetermined level, and for re-starting the connection with the grid when the direct current voltage returns back to the first predetermined level; and

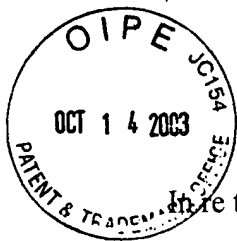
a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the connection.

2. (Previously Amended): An engine generator apparatus according to claim 1, wherein the output of the inverter is gradually increased at the start of the connection of the apparatus with the grid.

3. (Previously Amended): An engine generator apparatus according to claim 1, comprising a means where a generator fault signal is outputted, when the canceling and the re-starting of the connection with the grid and the direct current voltage drops down to below the second predetermined level is repeated.

4. (Previously Amended): A engine generator apparatus according to claim 2, comprising a means where a generator fault signal is outputted, when the canceling and the re-starting of the connection with the grid and the direct current voltage drops down to below the second predetermined level is repeated.

Clients on Prior Art (Q):\2001\010960\ Appeal Brief 101-4-03 (SMD)



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A Notice of Appeal was timely filed on August 14, 2003.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the subject application, which is:

Honda Giken Kogyo Kabushiki Kaisha

II. RELATED APPEALS AND INTERFERENCES

Appellants know of no other appeals or interference proceedings related to the present appeal.

III. STATUS OF CLAIMS

Claims 1-4 have been finally rejected under 35 U.S.C. §103(a). As indicated by the final arguments on patentability, the claims do not rise or fall together.

IV. STATUS OF AMENDMENTS

All amendments have been entered, including the Amendment filed on February 24, 2003.

V. CLAIMS ON APPEAL

A clean copy of the claims on appeal is attached hereto as Exhibit A.

VI. SUMMARY OF THE INVENTION

The present invention, more precisely defined in claims 1 to 4, is an engine generator apparatus which can detect a fault in the operation of its generator section, and yet is a simple arrangement of components. In operation of the claimed apparatus, the direct current voltage (just after rectification) drops down upon establishment of the parallel operation with commercial power system if the generator has a fault, such as a line breakage in the windings. The drop in direct current voltage is eliminated by releasing the parallel operation. When the parallel operation is turned off and then turned on again, it is possible to determine that any drop in the direct current voltage derives from a fault on the generator. This operation of the claimed apparatus allows the fault detection to be simply carried out without monitoring the output of each of three phase windings of the generator.

More particularly, an illustrative embodiment of the invention is shown in Figure 7. That figure is a block diagram illustrating an arrangement of primary functions according to the present invention. A direct current voltage detector 39 measures direct current voltage V_{dc} which has been rectified by a converter 131. A first fault monitor 40 is arranged to be responsive to the command of generator fault detection to start monitoring the direct current voltage V_{dc} . When the direct current voltage V_{dc} exceeds a threshold level V_{dcth} within a predetermined length of time, a signal for starting the parallel operation is outputted from the first fault monitor 40. Alternatively, when the direct current voltage V_{dc} does not exceed the threshold level V_{dcth} within the predetermined length of time, a signal for generator fault is outputted.

Upon receiving the parallel operation start signal, a relay 135 is closed and an output increasing unit 41 is switched on to increase gradually the output of inverter 133 in the inverter unit 13. When receiving the parallel operation start signal, an inverter output detector 42 starts measuring the output of inverter unit 13.

Upon receiving the parallel operation start signal, a second fault monitor 43 monitors the outputs of direct current voltage detector 39 and inverter output detector 42. When the inverter output exceeds a rated level with the direct current voltage V_{dc} remaining higher than the threshold level V_{dcth} , a generator normality signal is outputted from the second fault monitor 43.

When the direct current voltage V_{dc} declines to below the threshold level V_{dcth} before the inverter output reaches its rated level after the parallel operation start signal is outputted, the relay 135 is opened up, thus allowing the fault signal to be released throughout a predetermined length of time T . The time length T is provided for returning the direct current

voltage V_{dc} to its threshold level V_{dcth} by releasing the parallel operation and thus having no load. For example, this time length is the duration through which the direct current voltage V_{dc} is returned back to its threshold level after the first of three phase windings is disconnected. As the fault signal is inverted and received by a gate 44, the relay 135 is opened. Simultaneously, the fault signal is received by a counter 45 which increments the counter value at every rise of the fault signal.

VII. THE ISSUES

1. Whether the *Dalstein* reference discloses "a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the connection," as recited in claim 1 and as required by each of the claims;
2. Whether the references would motivate one skilled in the relevant art at the time of the claimed invention to combine the disclosures, so as to obtain Appellants' invention; and
3. Whether the *Dalstein* reference discloses either the gradual increase of the output of the inverter at the start of the connection of the apparatus with the grid, as in claim 2, or the means for outputting a generator fault signal when the canceling and re-starting of the inter connection is repeated, as in claims 3 and 4.

VIII. THE PRIOR ART REJECTION

Claims 1-4 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Latos et al.* (U.S. Patent No. 5,512,811) in view of *Bogel* (U.S. Patent No. 4,384,213), and further in view of *Dalstein* (U.S. Patent No. 5,854,590). According to the Examiner:

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Bogel teaches the construction of an automatic transfer control device having:

means for starting (52-1, 52-2) the interconnection with the system source when a direct current voltage rectified rises up to first predetermined level after the start up of the engine and then increasing the output of the inverter; and

means for canceling (52-1, 52-2) the interconnection when the direct current voltage drops down to below second predetermined level, and for re-starting the interconnection with the system source when the direct current voltage returns back to the first predetermined level.

Dalstein teaches the use of a method for generating a fault indication signal comprising:

fault detecting means (40) for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the interconnection;

means where a generator fault signal (S) is outputted, when the canceling and the re-starting of the interconnection with the power system is repeated; and

wherein the output of the inverter is gradually increased at the start of the interconnection of the apparatus with the power

system, for the purpose of distinguishing between permanent and metal contact short-circuits and short-circuits due to arcing.

IX. ARGUMENT WITH RESPECT TO THE ISSUES

A. THE REFERENCES

The Examiner combines the following three references to reject the pending claims.

Latos et al. discloses an electrical power starter/generator (10) that converts electrical energy from a DC electric power source, such as a battery, to mechanical energy that is utilized to start an auxiliary power unit, such as a turbine engine in an aircraft. A start mode controller (50) is used to control the rate of generation of rotational mechanical energy delivered to the turbine engine. An auxiliary power unit starter/generator relay (94) is commanded to close via a line (96), connecting the aircraft battery (12) to the electric power starter/generator (10), thereby engaging the start sequence. The auxiliary power unit starter/generator relay (94) is commanded to open when the auxiliary power unit engine (82) reaches the cutout speed, thereby completing the start sequence. A control permanent magnet generator (36) produces polyphase AC electric power when driven by the turbine engine via shaft (14). The electrical power starter/generator (10) has an internal power supply (130).

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And, *Dalstein* discloses a method of generating a fault indication signal using a neural network (26) to distinguish between permanent and transient faults as caused by arcing or a metal contact short-circuit. An output signal of 0.8 or higher is output for arcing and a signal of 0.1 is output for a metal contact short-circuit.

B. SUMMARY OF EXAMINER'S REJECTIONS

The Examiner admits that the primary reference, *Latos et al.*, fails to disclose certain limitations of Appellants' claims, including:

fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the restarting of the interconnection;

means where a generator fault signal is outputted, when the canceling and the re-starting of the interconnection with the power system is repeated; and

means where a generator fault signal is outputted, when the canceling and the re-starting of the interconnection with the power system is repeated wherein the output of the inverter is gradually increased at the start of the interconnection of the apparatus with the power system.

However, the Examiner concludes that it would be obvious for one skilled in the art "to use the method for generating a fault indication signal disclosed by *Dalstein* ... for the purposes of distinguishing between permanent metal contact short-circuits and short-circuits due to arcing," and thereby obtained Appellants' claimed invention.

C. APPELLANTS' ARGUMENT

Issue 1 The *Dalstein* patent is relied upon by the Examiner for the disclosure of a “post-processing device 40” which comprises “an AND element 41 with three inputs 42, 43 and 44, is connected to output 37 of threshold value device 36.” (3:35-39, 46-51). The reference, however, fails to disclose a means for fault detection after the re-starting of the interconnection. More specifically, in the words of the claims, *Dalstein* fails to disclose “a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the connection.” Accordingly, even if combined the references would not result in the claimed invention, and for that reason alone, the rejection should be withdrawn.

Issue 2 To justify the use of a particular combination of prior art references to find a claim unpatentable, there must be a showing in the references as a whole “to suggest the desirability, and thus the obviousness, of making the combination.” *Akamai Technologies, Inc., v. Cable & Wireless*, at 16 (Fed. Cir. September 15, 2003); *see also, C.R. Bard Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 48 USPQ2d 1225 (Fed. Cir. 1998). This principle embodies the same concept propounded by the Court of Appeals for the Federal Circuit in that, not only must there be a teaching in the prior art of the structural elements of appellant's claimed invention, the prior art itself must actually suggest that the structural elements be combined in a similar manner as the claimed invention. See, e.g., *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985), ***vacated on other grounds***, *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 229 USPQ 478 (1986).

In the present application, there is nothing within the cited references which would to “suggest the desirability, and thus the obviousness, of making the combination” of elements recited in claim 1, particularly, there is nothing within *Dalstein* to suggest the desirability of using “the method for generating a fault indication signal disclosed by *Dalstein* ... for the purposes of distinguishing between permanent metal contact short-circuits and short-circuits due to arcing,” as asserted in the Office Action. The mere disclosure of post-processing device 40 in *Dalstein* (3:35-39, 46-51) does not suggest the desirability of inserting such a device into the system disclosed in *Latos et al.*

Appellants therefore submit that there is no legal basis for combining the references in the manner proposed in the Office Action.

Issue 3 With respect to claim 2, the *Dalstein* patent is relied upon by the Examiner for the disclosure of output of the inverter is gradually increased at the start of the interconnection of the apparatus with the power system, for the purpose of distinguishing between permanent and metal contact short-circuits and short-circuits due to arching. However, the *Dalstein* reference fails to disclose the gradual increase of the output of the inverter at the start of the connection of the apparatus with the grid, as in recited claim 2.

With respect to claims 3 and 4, the *Dalstein* patent is relied upon by the Examiner for the disclosure of “a fault indication signal S with a pre-defined value of 0.8 or higher at output 35 for arcing, while a fault indication signal S with another pre-defined value of approximately 0.1 is present for a metal contact short-circuit.” (3:28-32). However, this disclosure does not satisfy

the recitation of claims 3 and 4 of a means for outputting a generator fault signal when the canceling and re-starting of the inter connection is repeated.

Accordingly, Appellants submit that claims 2-4 are patentable over the cited references.

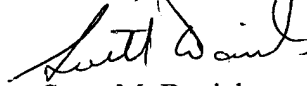
X. CONCLUSION

For the above reasons, the Board of Patent Appeals and Interferences is therefore respectfully requested to reverse the Examiner's rejection of the pending claims as being obvious over the cited references.

In the event this paper is timely filed, Appellants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to Deposit Account No. 50-2866, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re the application of: **FUKUSHIMA, Tomoki et al.**

Serial Number: **09/938,729**

Group Art Unit: **2834**

Filed: **August 27,2001**

Examiner: **Pedro J. Cuevas**

PTO Confirmation: 2756

For: **ENGINE GENERATOR APPARATUS**

CLAIMS ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

The claims on appeal are 1-4, presented below.

1. (Previously Amended): A grid-connected type engine generator apparatus for rectifying and converting an alternating output of a generator, which has multi-phase windings and is driven by an engine, and converting the rectified output by an inverter into an alternating current at the frequency of grid and the alternating current is connected with the comprising:

a means for starting the connection with the grid when the direct current voltage at inside of the inverter rises up to first predetermined level after the start up of the engine and then increasing the output of the inverter;

a means for canceling the connection when the direct current voltage drops down to below second predetermined level, and for re-starting the connection with the grid when the direct current voltage returns back to the first predetermined level; and

a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the connection.

2. (Previously Amended): An engine generator apparatus according to claim 1, wherein the output of the inverter is gradually increased at the start of the connection of the apparatus with the grid.

3. (Previously Amended): An engine generator apparatus according to claim 1, comprising a means where a generator fault signal is outputted, when the canceling and the re-starting of the connection with the grid and the direct current voltage drops down to below the second predetermined level is repeated.

4. (Previously Amended): A engine generator apparatus according to claim 2, comprising a means where a generator fault signal is outputted, when the canceling and the re-starting of the connection with the grid and the direct current voltage drops down to below the second predetermined level is repeated.

Clients on Prior Art (Q):\2001\010960\ Appeal Brief 101-4-03 (SMD)